



Meshing - Advanced Size Function




Advanced Size Function

an ANSYS Tutorial



[Click Here to Start Tutorial](#)

© 2009 ANSYS, Inc. All rights reserved. ANSYS, Inc. Proprietary




Advanced Size Function

The Advanced Size Function option allows for greater control over global sizing functions. This controls the following properties

- Angles between normals for adjacent mesh elements (Curvature-type size function)
- Number of mesh elements employed in the gaps between two geometric entities (Proximity-type size function)
- Gradation between minimum and maximum sizes based on a specified growth rate (All size functions)

[Click Here to Continue](#)

© 2009 ANSYS, Inc. All rights reserved. ANSYS, Inc. Proprietary



Advanced Size Function

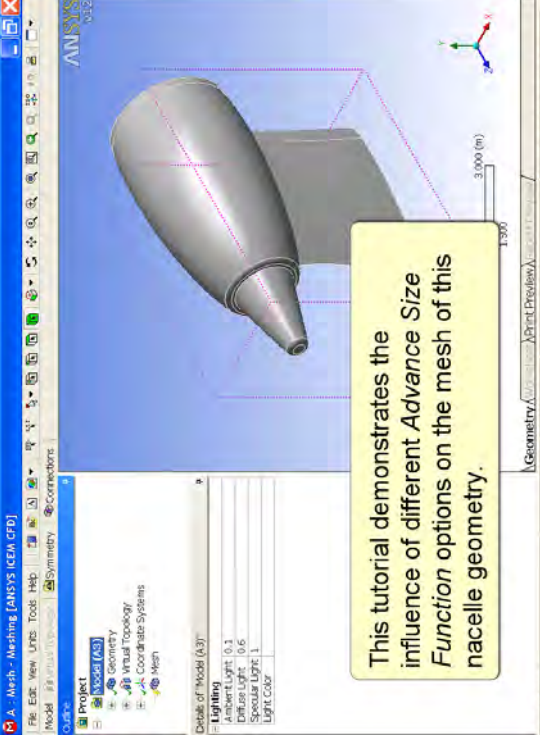
Topics Covered in this tutorial

- Meshing the Geometry with different *Advanced Size Functions*
 - Off
 - Fixed
 - Proximity
 - Curvature
 - Proximity and Curvature

(Click on the above options for instant viewing)

[Click Here to Continue](#)

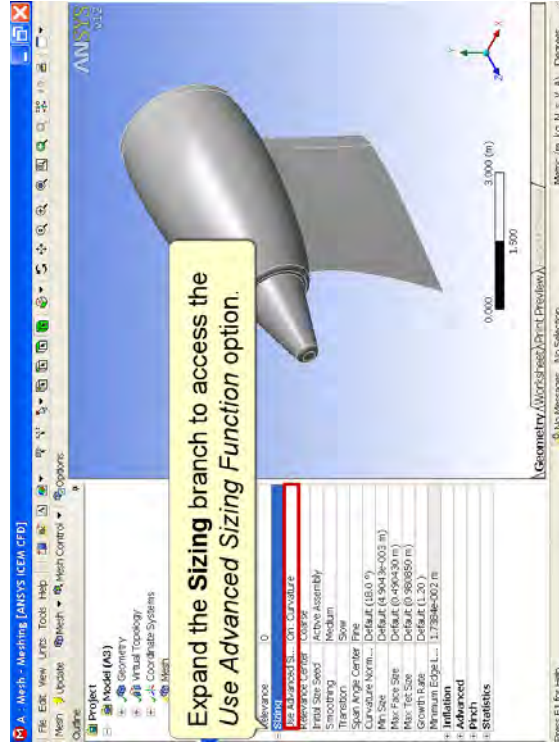
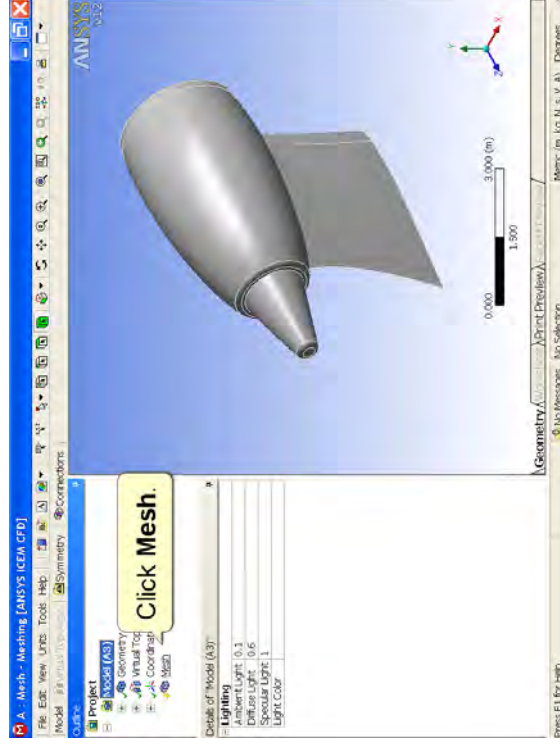
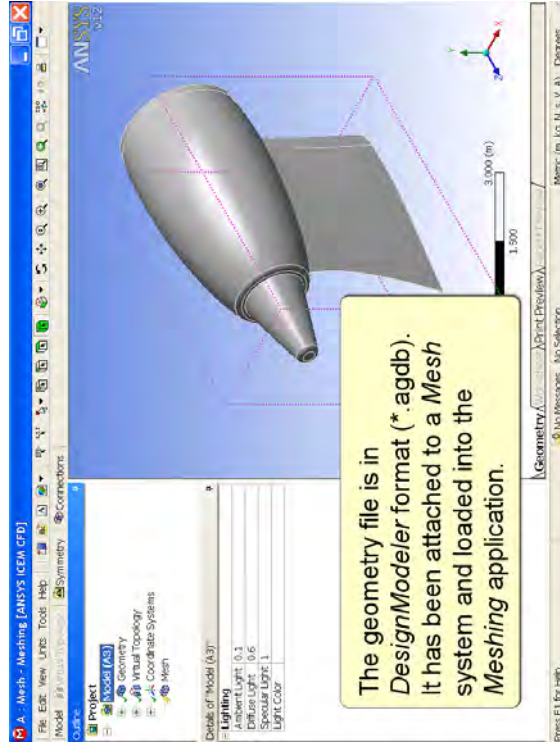
© 2009 ANSYS, Inc. All rights reserved. ANSYS, Inc. Proprietary



This tutorial demonstrates the influence of different *Advanced Size Function* options on the mesh of this nacelle geometry.

© 2009 ANSYS, Inc. All rights reserved. ANSYS, Inc. Proprietary

Meshing - Advanced Size Function



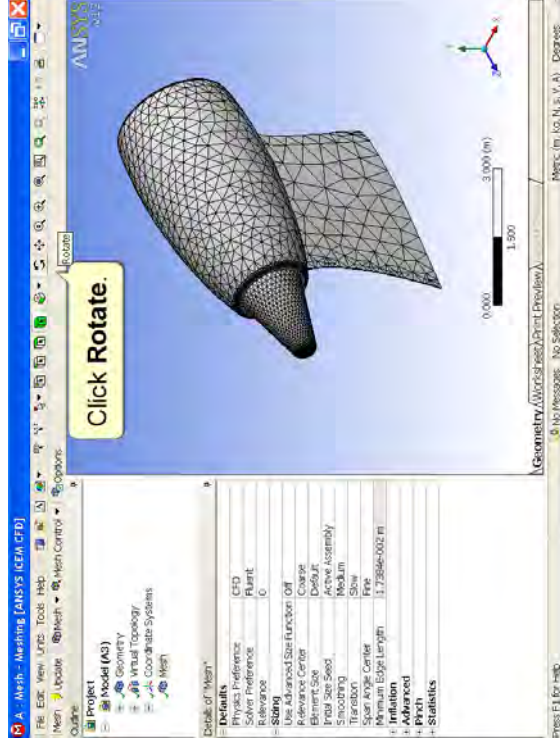
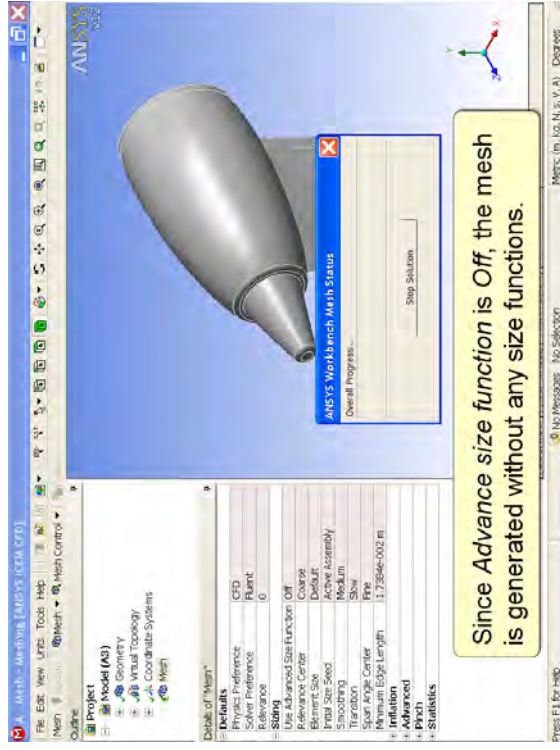
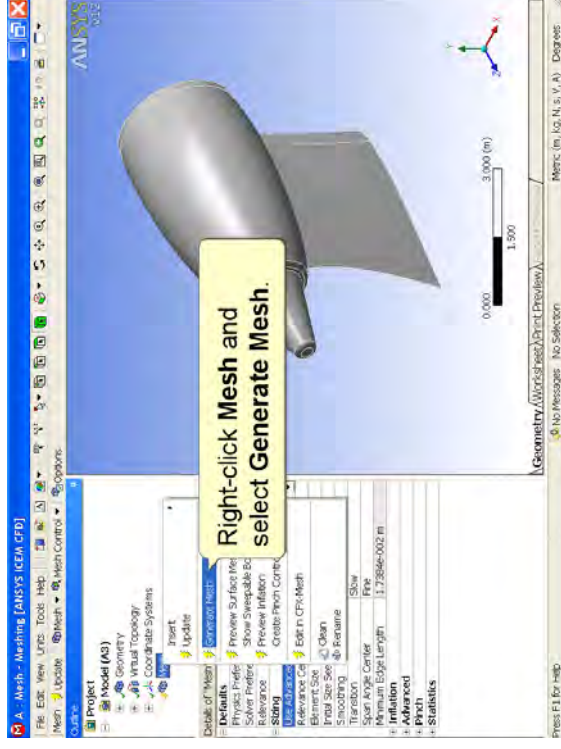
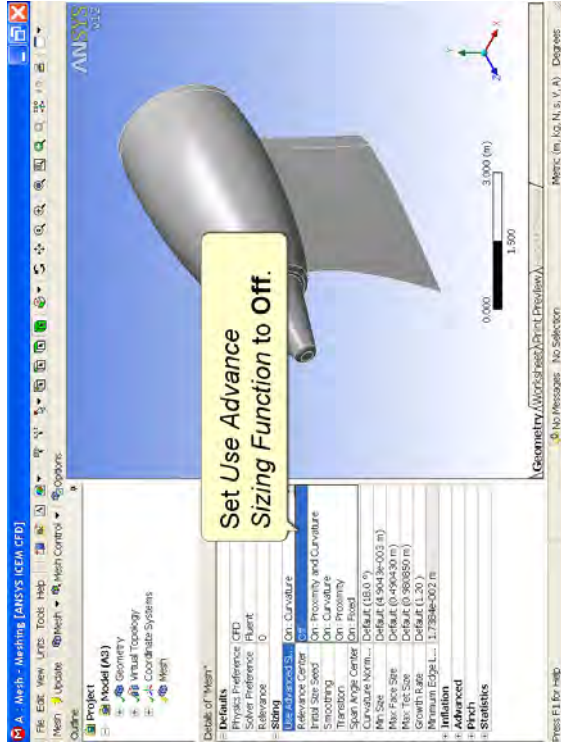
ANSYS

Advanced Size Function: Off

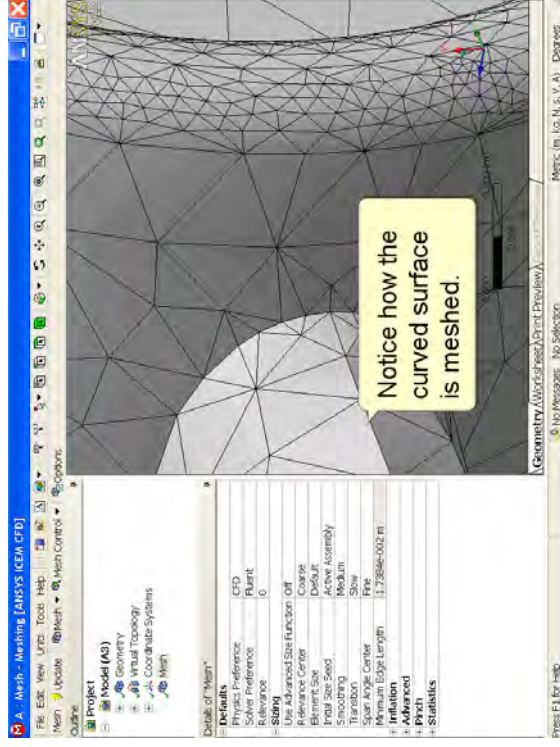
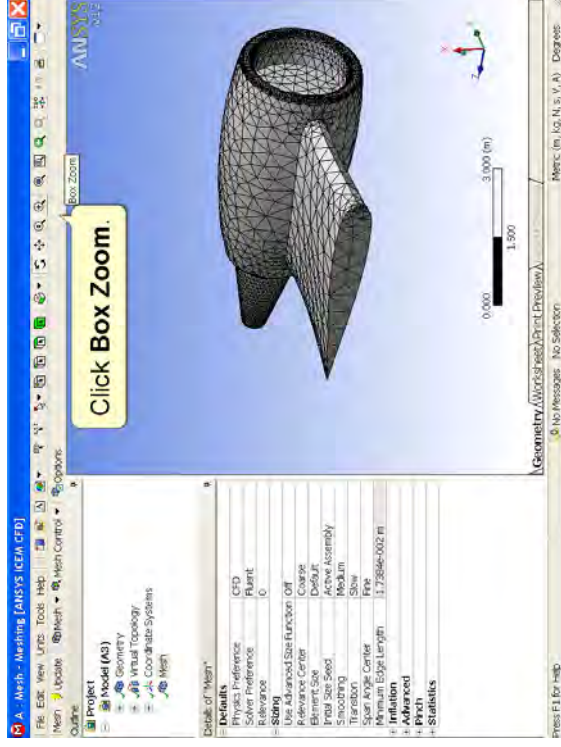
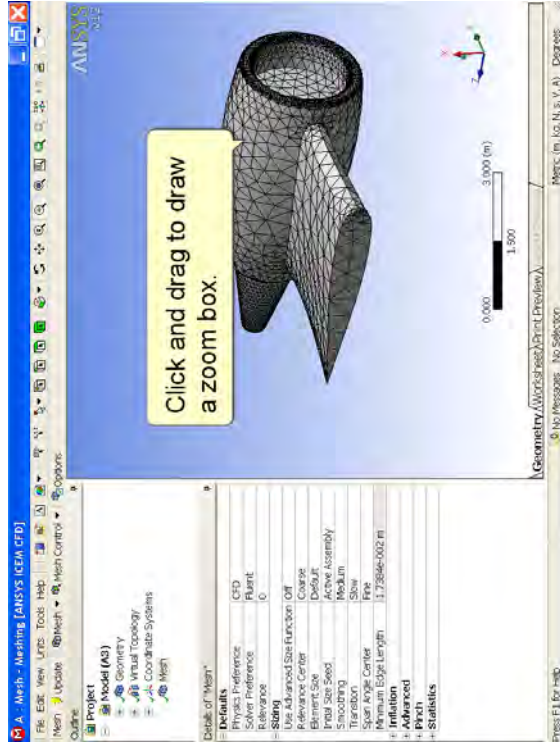
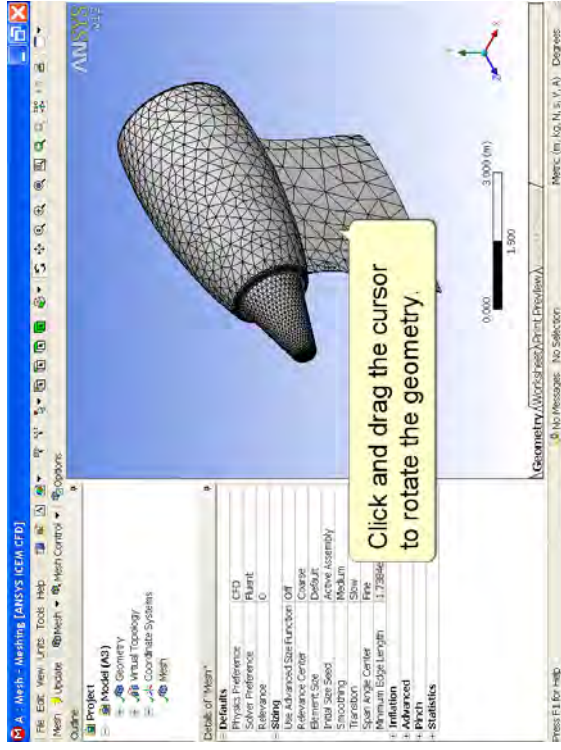
When the *Use Advanced Size Function* control is *Off*, the mesher uses the value of the element size to determine a starting point for the mesh size. The value of the element size can be automatically computed by the mesher or user-defined.

Click Here to Continue

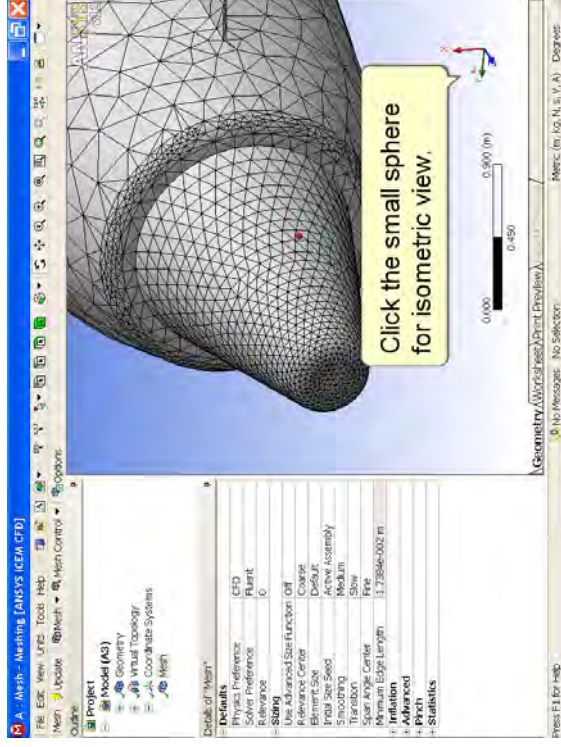
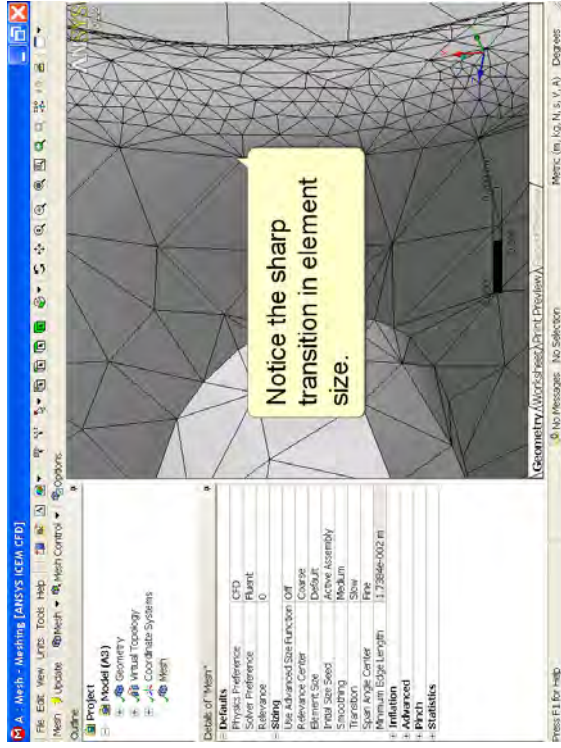
Meshing - Advanced Size Function



Meshing - Advanced Size Function



Meshing - Advanced Size Function



Advanced Size Function: On: Fixed

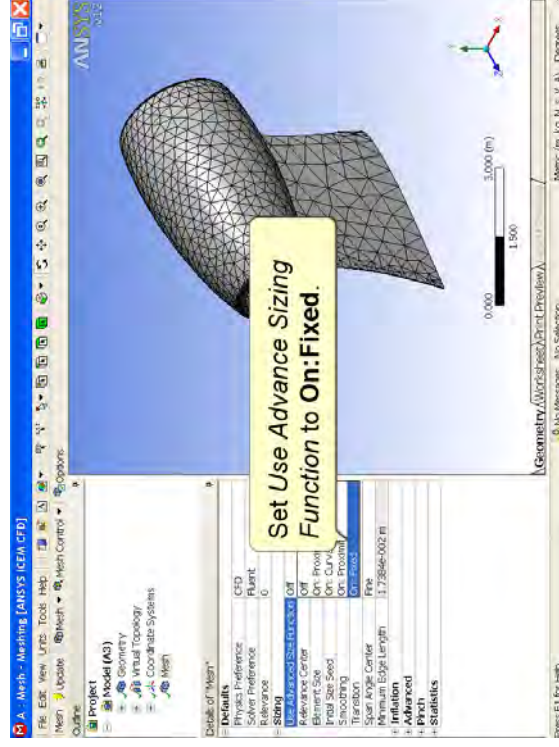
When the *Advanced Size Function* is *On* and set to *Fixed* the following factors contribute to the final mesh distribution obtained by the mesher:

- Min Size
- Max Face Size
- Max Tet Size
- Growth Rate

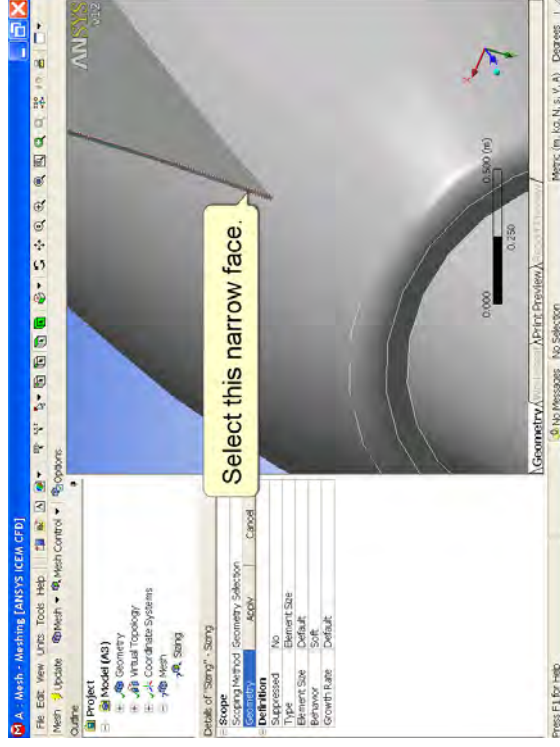
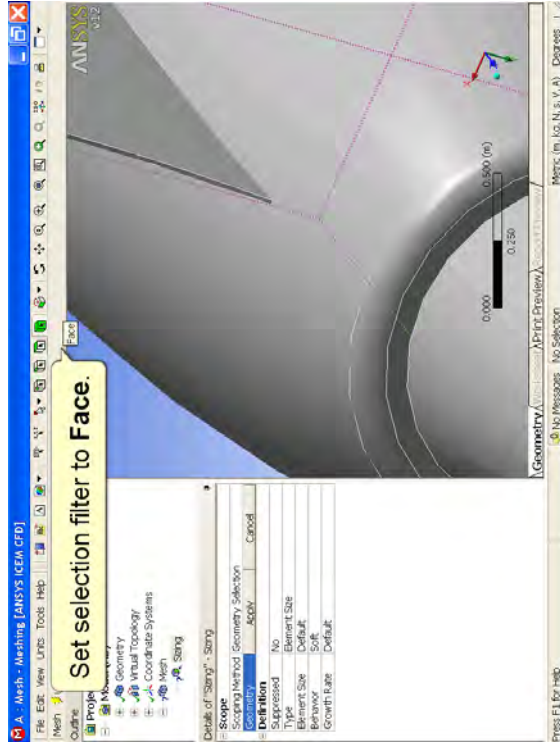
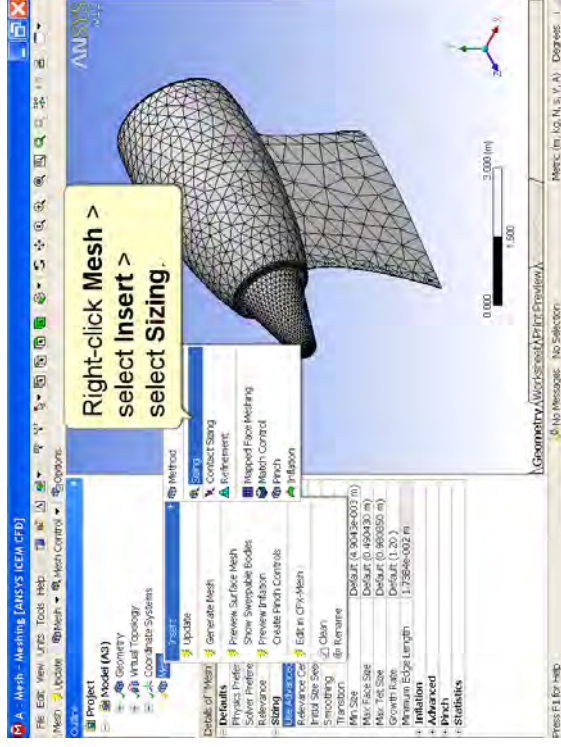
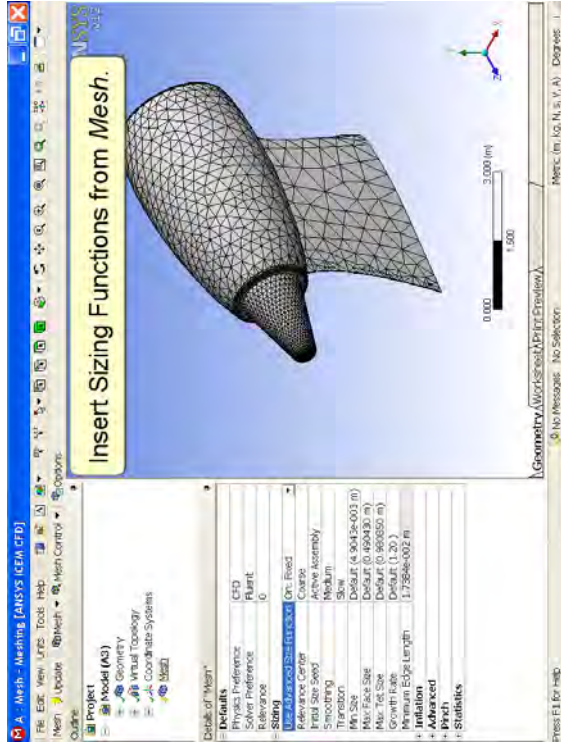
© 2009 ANSYS, Inc. All rights reserved.

ANSYS, Inc. Proprietary

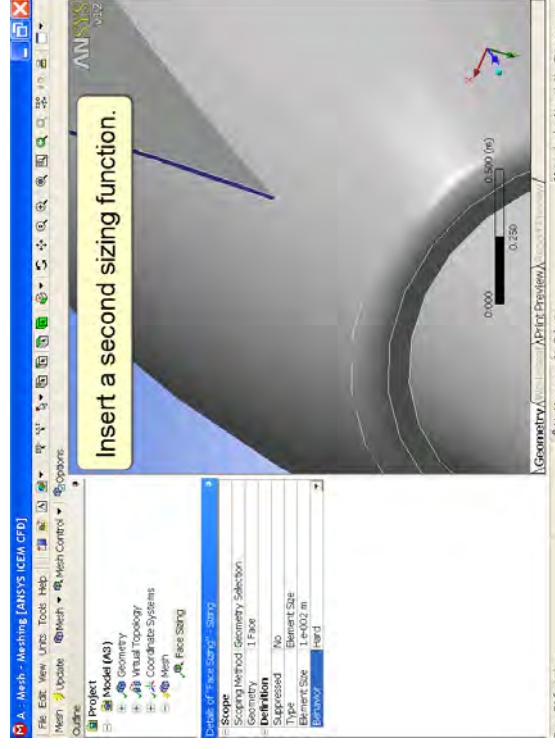
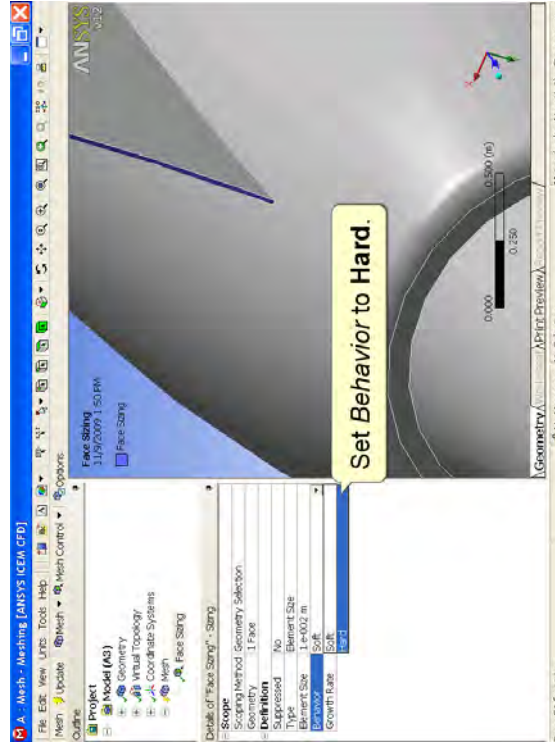
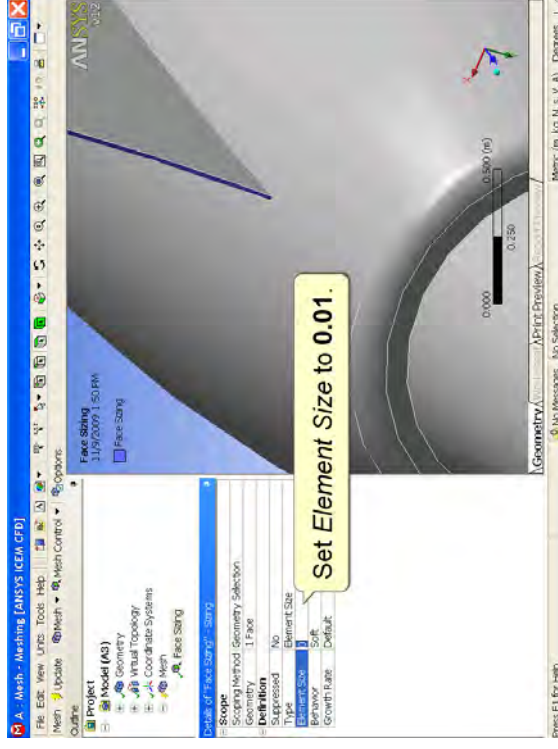
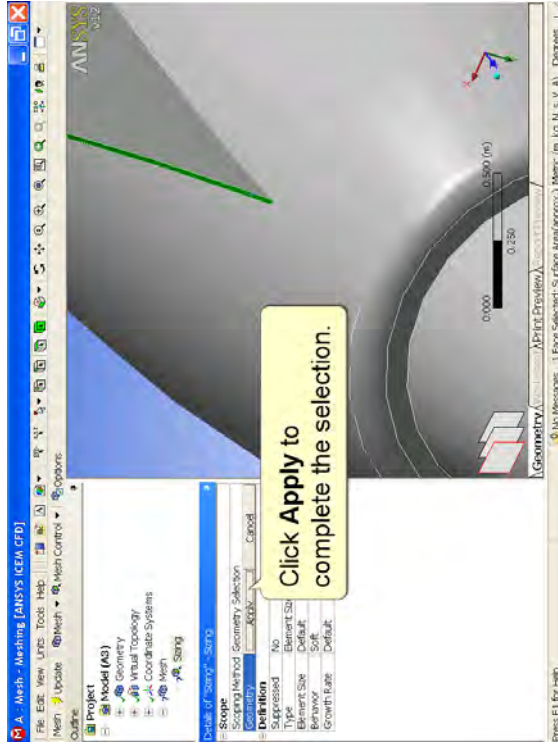
Click Here to Continue



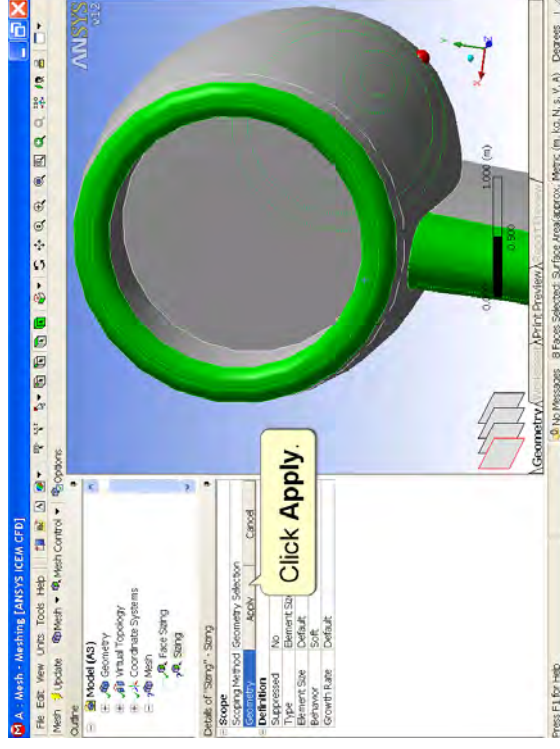
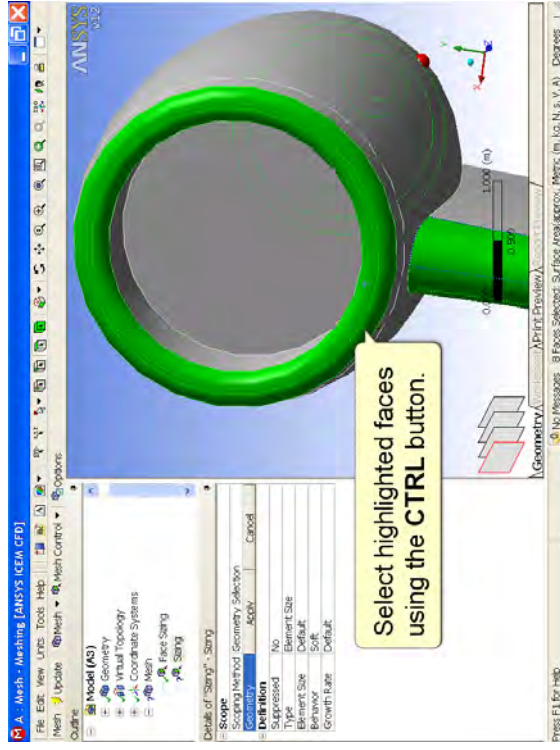
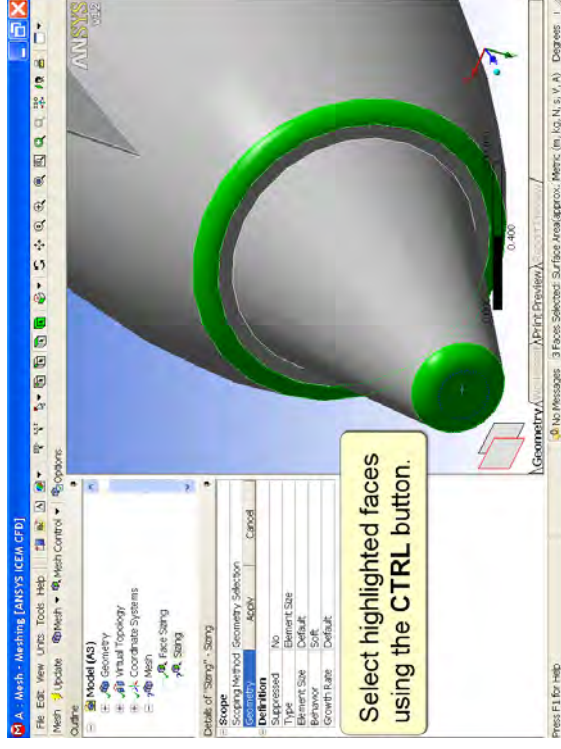
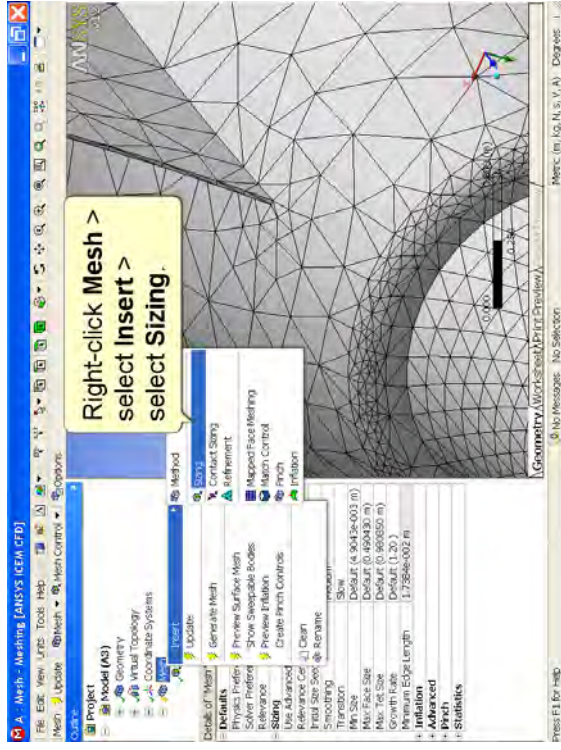
Meshing - Advanced Size Function



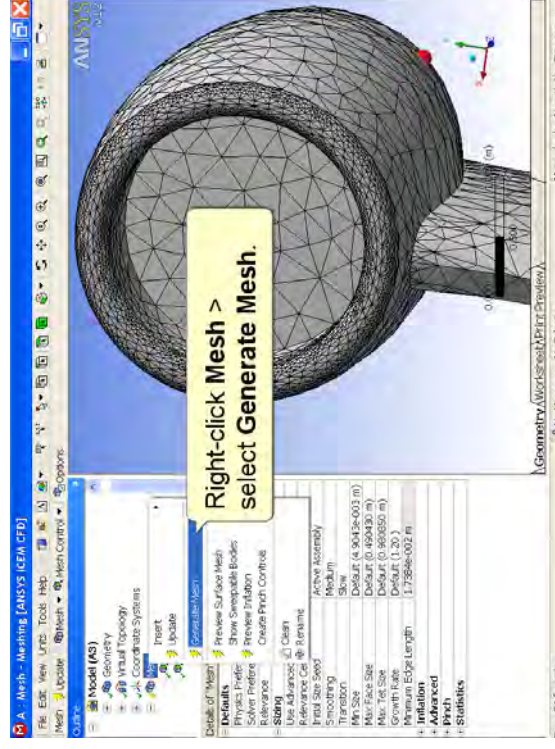
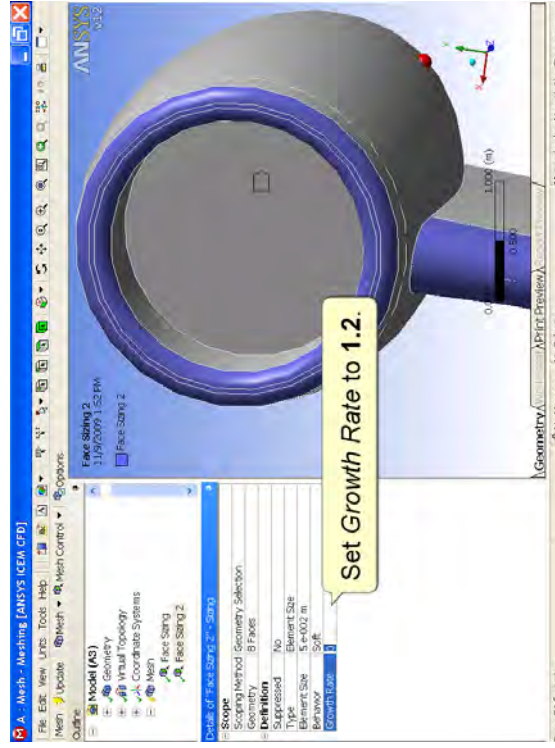
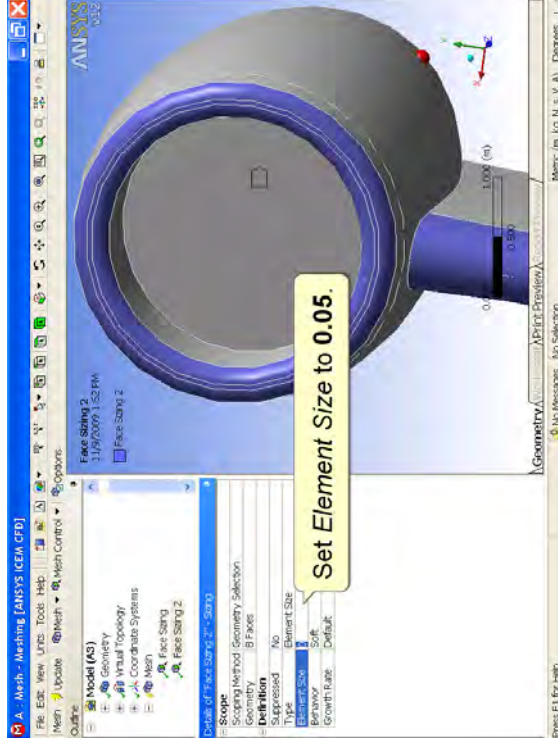
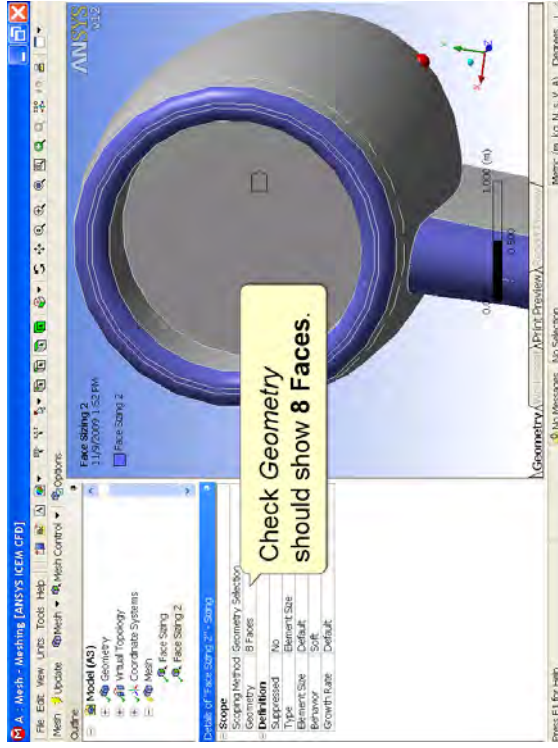
Meshing - Advanced Size Function



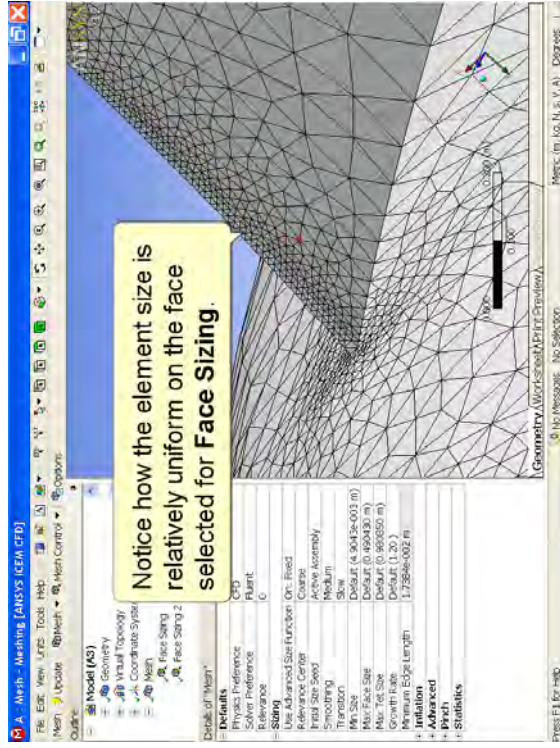
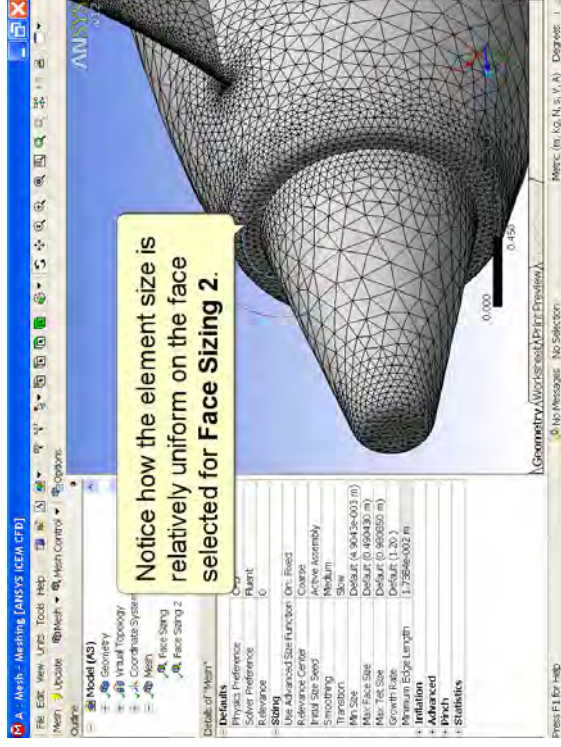
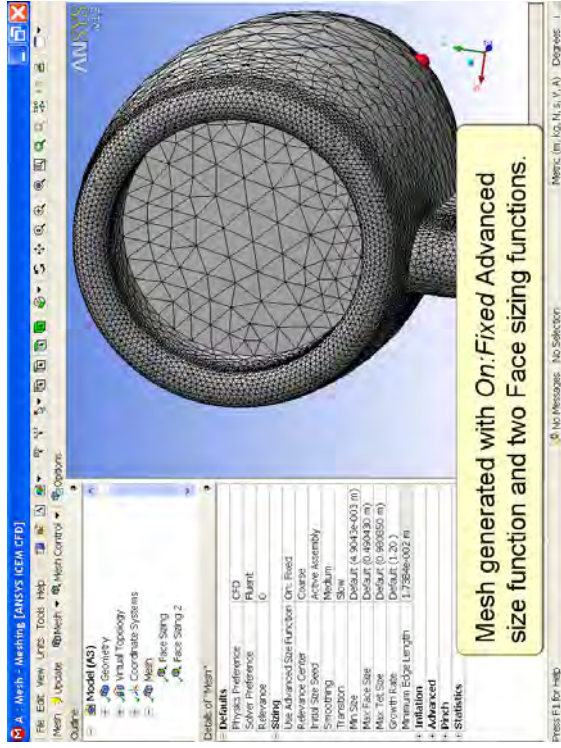
Meshing - Advanced Size Function



Meshing - Advanced Size Function



Meshing - Advanced Size Function



ANSYS

Advanced Size Function: On: Proximity

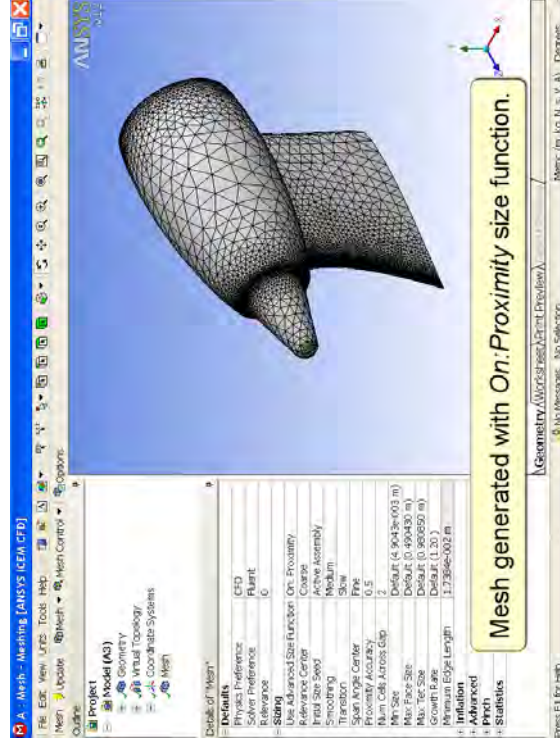
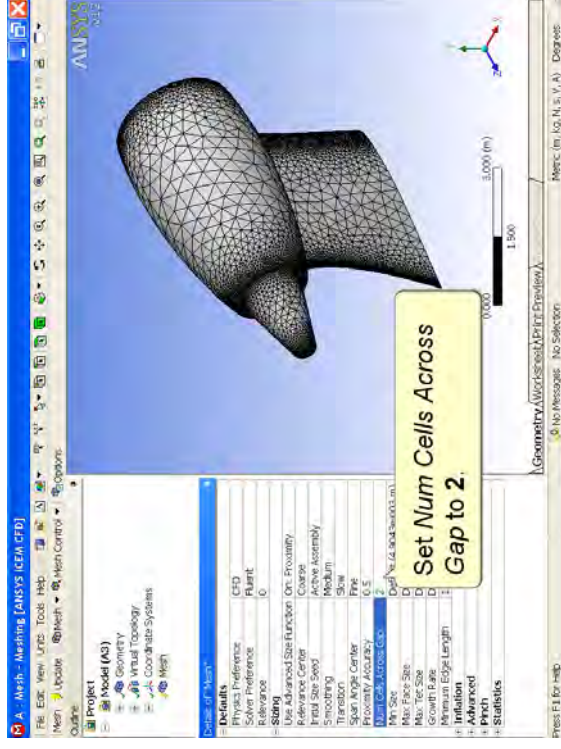
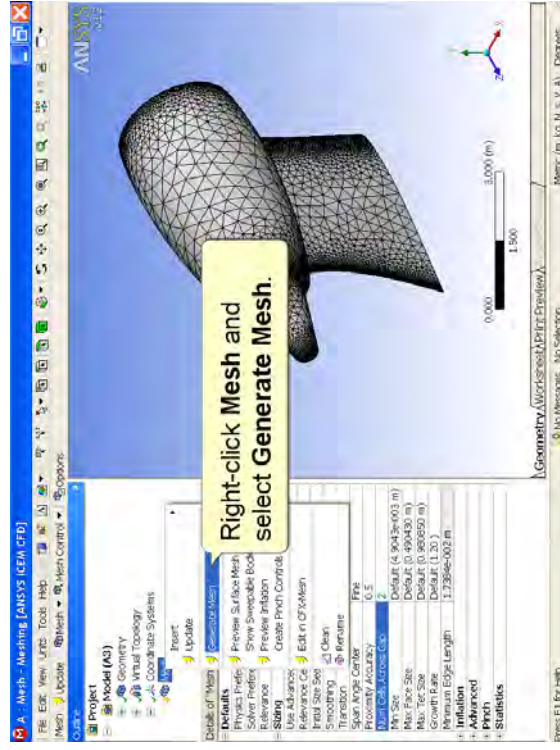
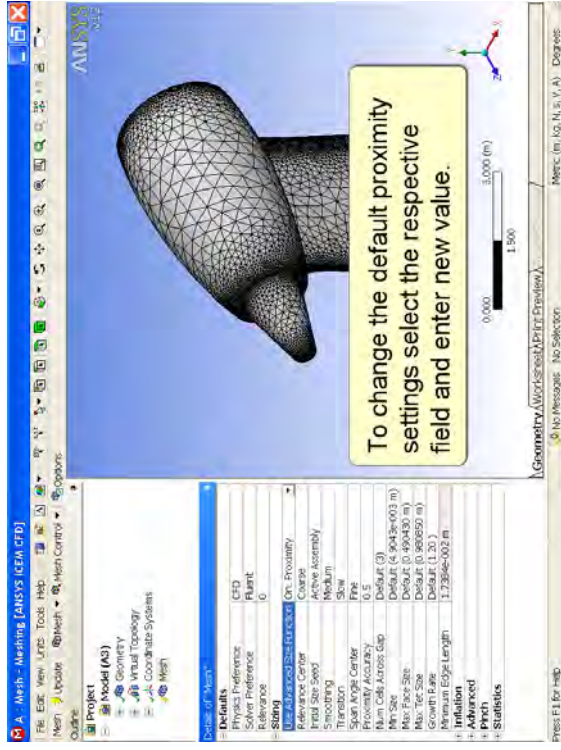
The *Proximity Size Function* allows you to specify the minimum number of element layers created in regions that constitute "gaps" in the model. For the purposes of specifying a proximity size function, a "gap" is defined in one of two ways:

- The internal volumetric region between two faces
- The area between two opposing boundary edges of a face

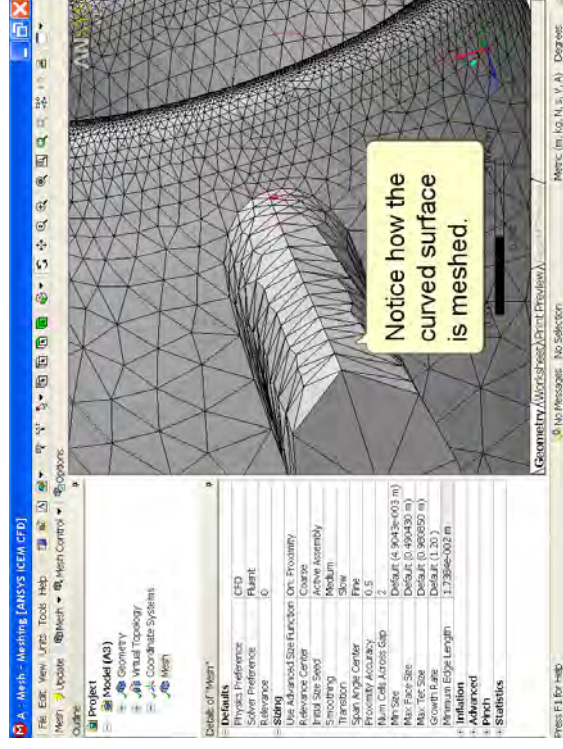
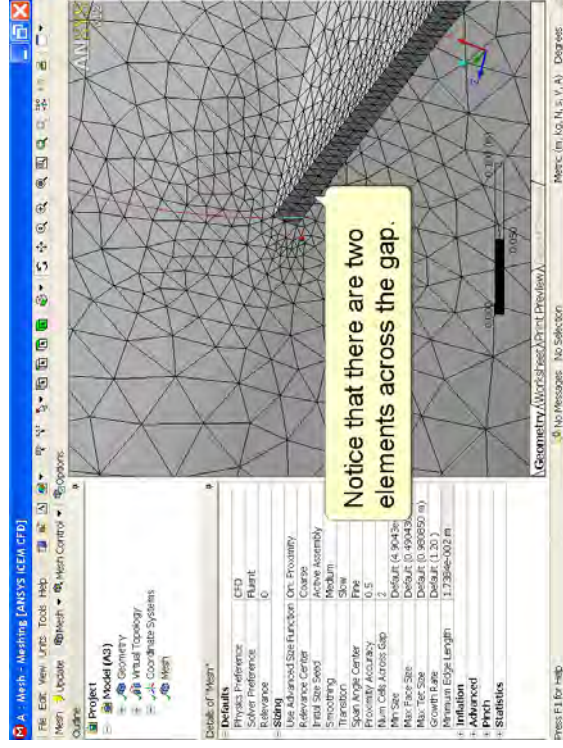
[Click Here to Continue](#)

© 2009 ANSYS, Inc. All rights reserved. ANSYS, Inc. Proprietary

Meshing - Advanced Size Function



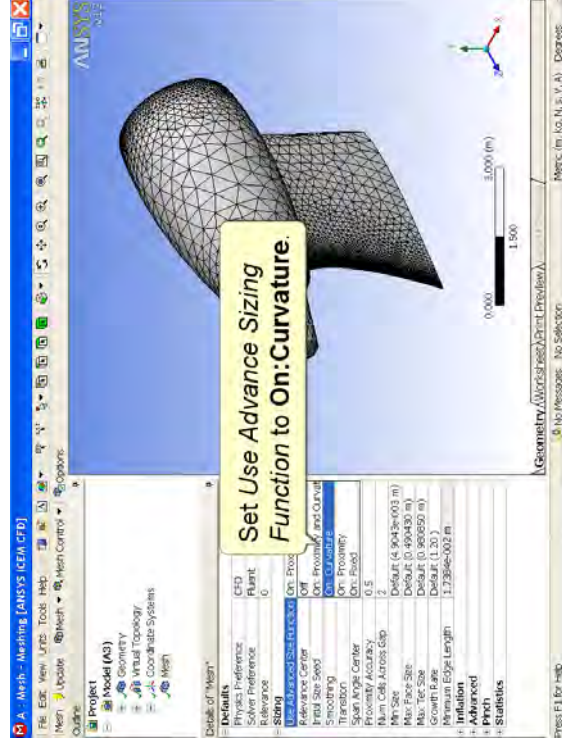
Meshing - Advanced Size Function



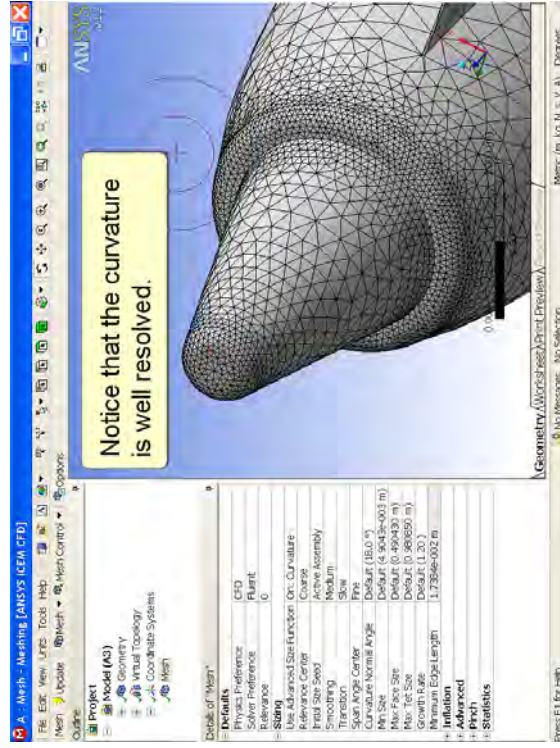
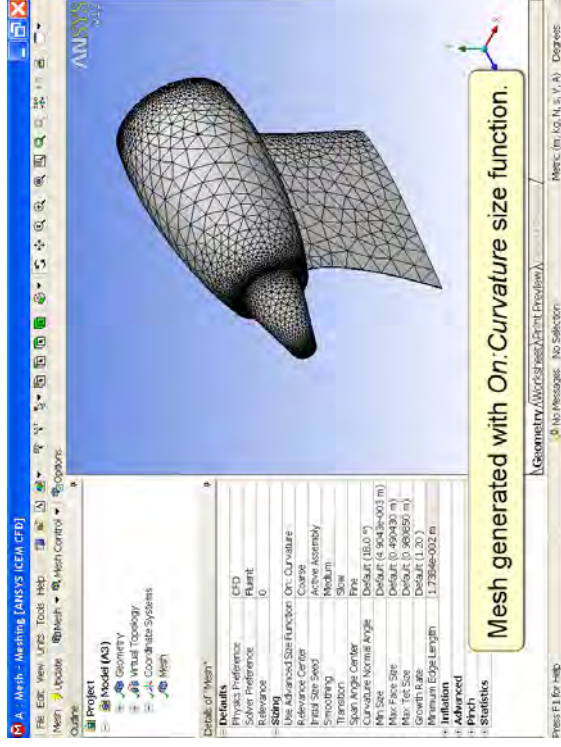
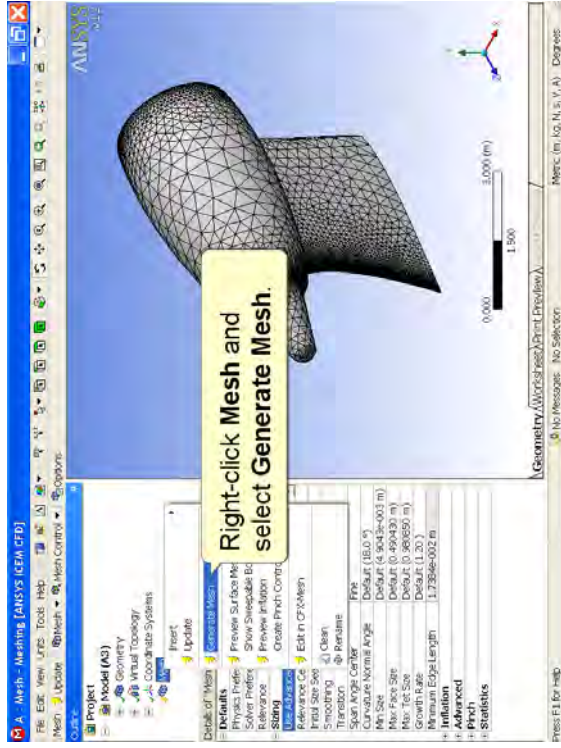
Advanced Size Function: On: Curvature

The *Curvature Size Function* examines curvature on edges and faces and computes element sizes on these entities such that the size will not violate the maximum size or the curvature normal angle, which are either automatically computed by the mesher or defined by the user.

[Click Here to Continue](#)



Meshing - Advanced Size Function



ANSYS

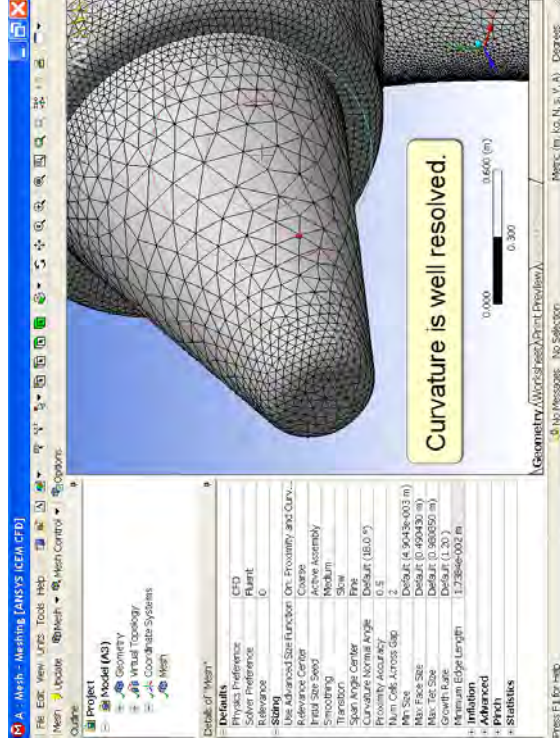
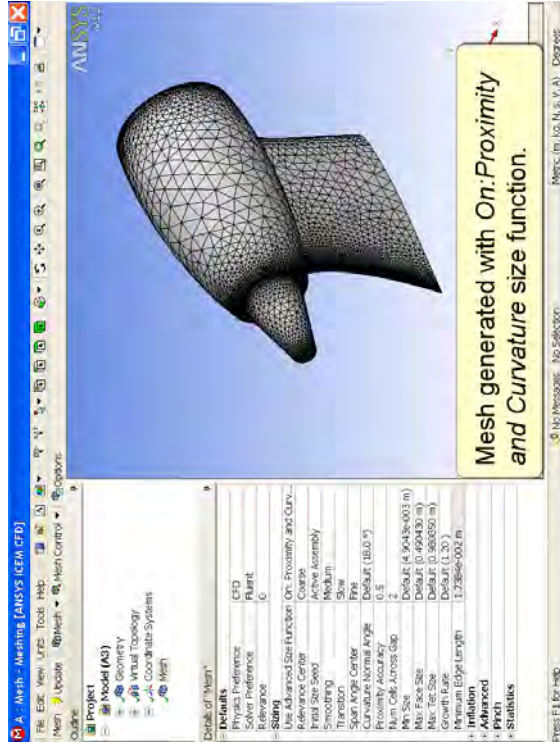
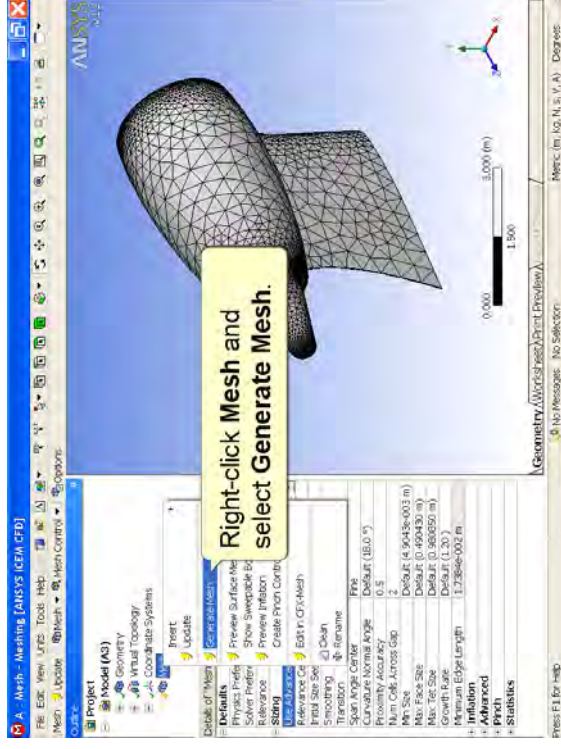
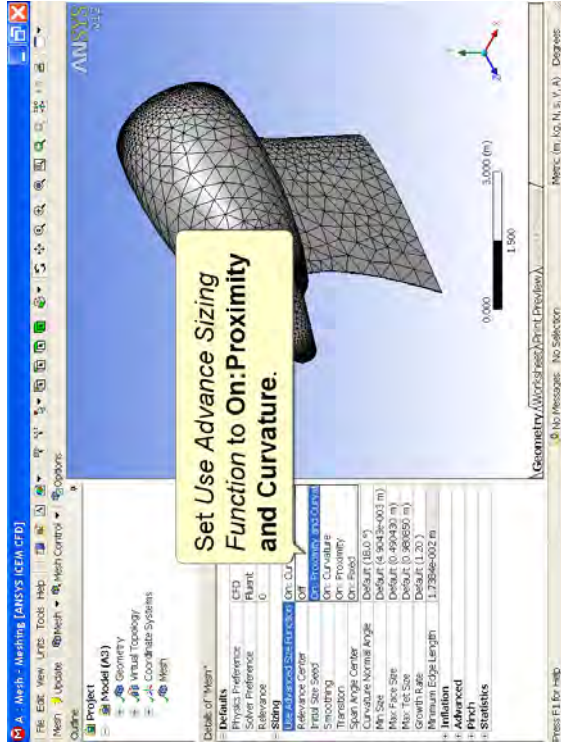
Advanced Size Function: On: Proximity and Curvature

Combined effect of *Proximity* and *Curvature* can be obtained by using this function.

All the parameters of the *Proximity* and *Curvature* are used to define this Advance size function.

[Click Here to Continue](#)

Meshing - Advanced Size Function



Meshing - Advanced Size Function

